

Internet de las Cosas

Prácticas Ultrasónico



Rogelio Ferreira Escutia

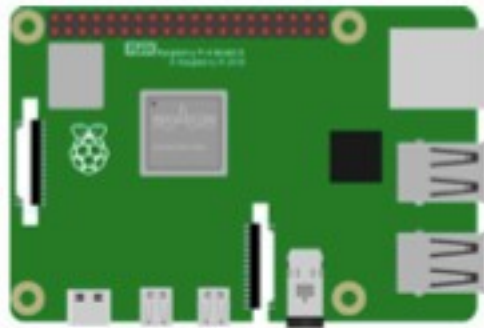
Profesor / Investigador
Tecnológico Nacional de México
Campus Morelia



Ultrasonico

Material

1 * Raspberry Pi



1 * T-Extension Board



1 * HC SR04



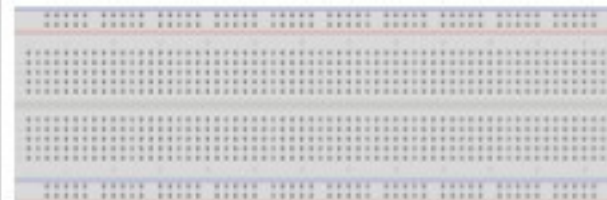
Several Jumper Wires



1 * 40-pin Cable



1 * Breadboard



Sensor

- **Ultrasónico HC SR04**



Funcionamiento

- **Ultrasónico HC SR04**



TRIG	Trigger Pulse Input
ECHO	Echo Pulse Output
GND	Ground
VCC	Supply

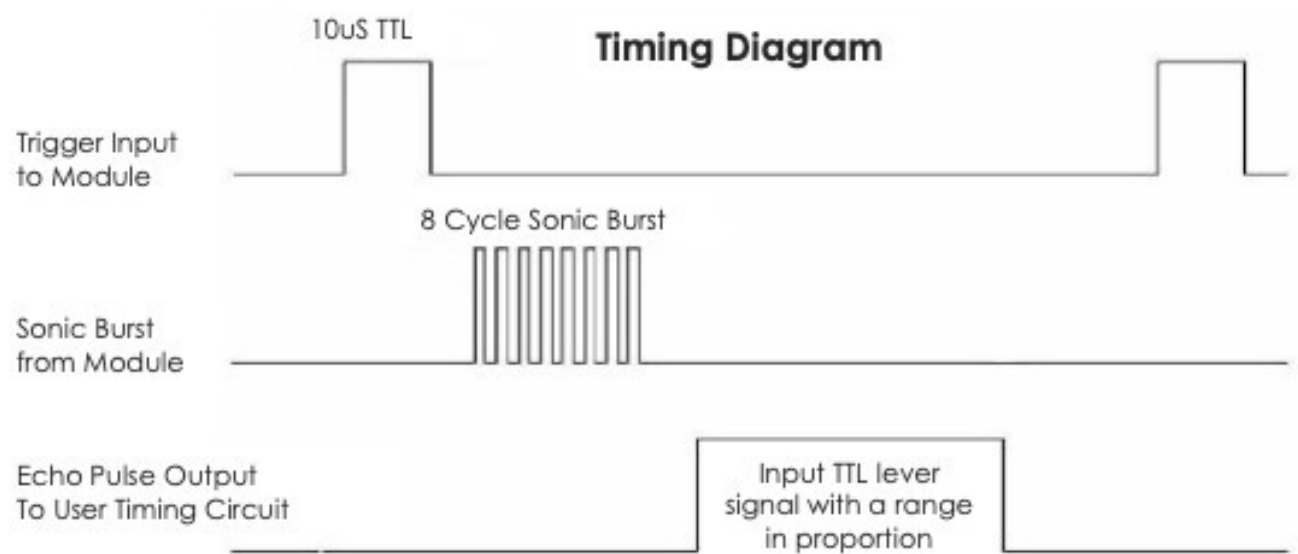
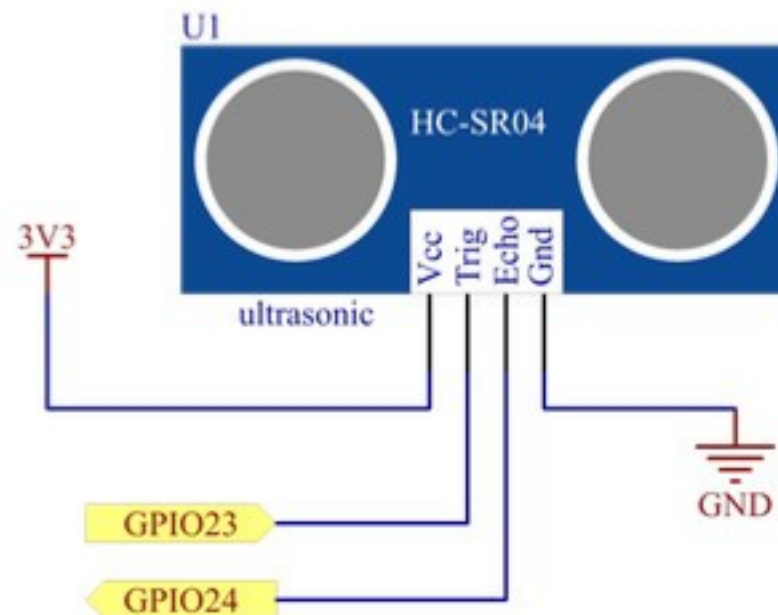


Diagrama eléctrico

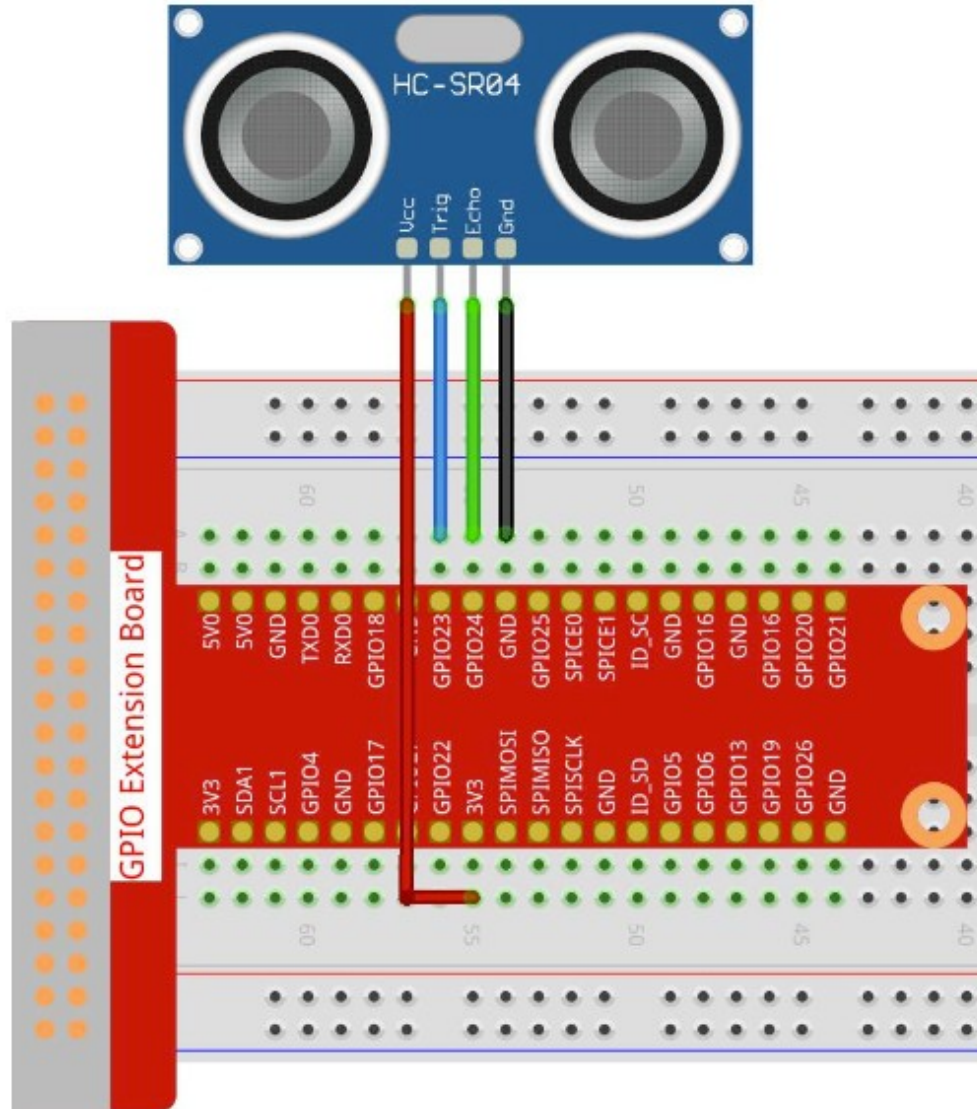
- **Ultrasónico HC SR04**

T-Board Name	physical	wiringPi	BCM
GPIO23	Pin 16	4	23
GPIO24	Pin 18	5	24



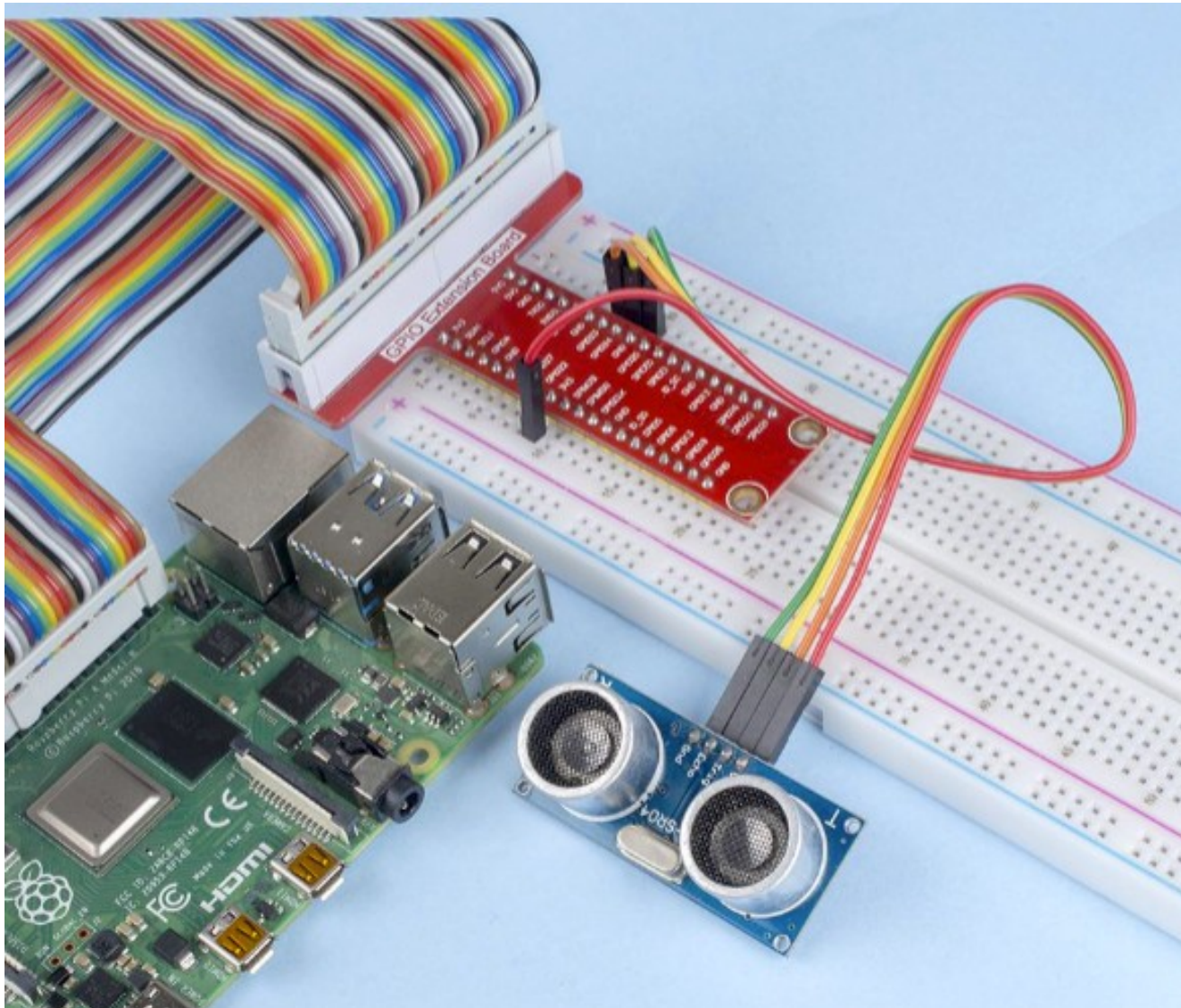
Conexión

- **Ultrasónico HC SR04**



Conexión

- **Ultrasónico HC SR04**



Código

- **Ultrasónico HC SR04**

```
import RPi.GPIO as GPIO  
import time
```

```
TRIG = 16
```

```
ECHO = 18
```

Código

- **Ultrasónico HC SR04**

```
def setup():  
    GPIO.setmode(GPIO.BOARD)  
    GPIO.setup(TRIG, GPIO.OUT)  
    GPIO.setup(ECHO, GPIO.IN)
```

Código

- **Ultrasónico HC SR04**

```
def distance():  
    GPIO.output(TRIG, 0)  
    time.sleep(0.000002)  
  
    GPIO.output(TRIG, 1)  
    time.sleep(0.00001)  
    GPIO.output(TRIG, 0)
```

Código

- **Ultrasónico HC SR04**

```
while GPIO.input(ECHO) == 0:  
    a = 0  
time1 = time.time()  
while GPIO.input(ECHO) == 1:  
    a = 1  
time2 = time.time()  
  
during = time2 - time1  
return during * 340 / 2 * 100
```

Código

- **Ultrasónico HC SR04**

```
def loop():  
    while True:  
        dis = distance()  
        print ('Distance: %.2f' % dis )  
        time.sleep(0.3)
```



Código

- **Ultrasónico HC SR04**

```
def destroy():  
    GPIO.cleanup()
```

Código

- **Ultrasónico HC SR04**

```
if __name__ == "__main__":  
    setup()  
    try:  
        loop()  
    except KeyboardInterrupt:  
        destroy()
```



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Tecnológico Nacional de México
Campus Morelia



rogelio.fe@morelia.tecnm.mx



rogeplus@gmail.com



xumarhu.net



[@rogeplus](https://twitter.com/rogeplus)



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[rogelioferreiraescutia](https://www.linkedin.com/in/rogelioferreiraescutia)

